

WHAT IS CLAIMED IS:

1. A method for routing calls over a communications network from an origin location to a destination location associated with a call type, said calls comprising signaling data and traffic data, the method comprising the steps of:

receiving signaling data from the origin location;

5 determining said call type from said signaling data that has been received wherein said call type is characterized as a first call type or a second call type;

directing said signaling data to said destination location associated with said call type that has been determined to establish a call; and

10 controlling a switch serving said destination location to direct traffic data from the origin location to said destination location associated with said call type.

2. The method of Claim 1 wherein said signaling data comprises an initial ~~message and following messages.~~

3. The method of Claim 1 wherein said step of determining a call type from said initial message that has been received further comprises the steps of:

decoding said initial message;

5 determining a called directory number from said initial message that has been decoded; and

matching said called directory number with an entry of a predetermined table correlating directory numbers, said call types, and said destination locations.

4. The method of claim 1 further comprising the step of:

creating a table, wherein each element of said table correlates directory number with said call type and said destination location; and
storing said table.

5. The method of Claim 1 wherein said signaling data that has been received and said signaling data that has been directing are of a first protocol.

6. The method of Claim 1 wherein said signaling data that has been received is of a first protocol and said signaling data that has been directing is of a second protocol.

7. The method of Claim 1 wherein said step of directing said signaling data to said destination location associated with said call type that has been determined to establish a call further comprises the steps of:

forwarding said signaling data that has been received in a first protocol to a first
5 destination network element, when said call type is characterized as said first call type;
translating said signaling data that has been received in said first protocol to
corresponding signaling data of a second protocol, when said call type is characterized as
said second call type; and
forwarding said signaling data of said second protocol to a second destination
10 network element, when said call type is characterized as said second call type.

8. The method of Claim 7 wherein said first protocol is Signaling System Seven (SS7) and said step of forwarding is accomplished via a SS7 A-link.

9. The method of claim 7 wherein said second protocol is ISDN Primary Rate Interface (PRI) Q.931 and said step of forwarding is accomplished via a Primary Rate Interface.

10. The method of claim 7 wherein said first call type is characterized as a voice call and said second call type is characterized as an internet protocol call.

11. The method of claim 1 wherein said destination location is a class 5 circuit switch.

12. The method of claim 1 wherein said destination location is a remote access server.

13. The method of claim 1 wherein said step of controlling a switch comprises the steps of:

sending an application programming interface command to said switch; and

setting up a connection through said switch to a port connected to said destination

5 location according to said command.

14. The method of claim 12 wherein said connection is selected from the group consisting of switched connection and a soft Permanent Virtual Circuit connection.

15. The method of claim 1 wherein said switch is an asynchronous transfer mode switch.

16. The method of claim 1 wherein call traffic data is distributed over a digitized voice transmission system selected from the group consisting of T1, E1, STS-1, DS-3, frame relay, native ATM, and Ethernet.

17. The method of claim 1 further comprising the steps of:

storing call detail information, when said call type is characterized as said second call type; and

transferring said call detail information that has been stored to a call accounting
5 system.

18. The method of claim 17 wherein said call detail information is selected from the group consisting of call start time-stamp, call end time-stamp, called party directory number, called party sub-address, calling party directory number, calling party sub-address, disconnect reason, inbound B channel, outbound B channel, inbound circuit
5 identification code, outbound circuit identification code, inbound node identification, and outbound node identification.

19. A destination call router for routing calls from an originating location to a destination location, the destination call router comprising:

a first segment responsive to a signaling network for determining a call type as a first call type or a second call type and commanding further action based on said call

5 type; and

a second segment responsive to commands from said first segment for switching received transmissions between a plurality of destination locations, each destination location being associated with said first call type or said second call type.

20. The destination call router of claim 19 wherein said first segment is operable to

receive call set-up information of a first protocol;

determine said call type from said call set-up information;

direct said call set-up information of said first protocol to a first location type

5 destination location for said first call type and forward replies from said first location type destination location to said originating destination in order to establish a call;

translate said call set-up information of said first protocol to a second protocol for said second call type and direct said call set-up information of said second protocol to a second location type destination network element and forward to said originating

10 destination in said first protocol replies in said second protocol from said second location type destination network element in order to establish a call;

control a switch to connect call data of said first call type to said first type destination network element and call data of said second call type to said second type destination-network-element.

21. The destination call router of claim 19 wherein said first segment comprises:

a) Broadband Interworking Call Router.

22. The destination call router of claim 19 wherein said second segment comprises:

a plurality of ATM switches.

23. An apparatus to provide network congestion relief for the public switched telephone network, the apparatus comprising:

a receiver for receiving call set-up information of a first protocol;

a first processing unit for determining a call type from said received information;

5 a second processing unit for translating said call set-up information of said first protocol to a second protocol, when said call type is characterized as a second call type;

a transmitter for forwarding

a) said call set-up information of said first protocol to a first location type destination network element when said call type is characterized as a first call type and

10 b) said call set-up information of said second protocol to a second location type destination network element when said call type is characterized as a second call type; and

means for controlling a switch to connect call data of said first call type to said first type destination network element and call data of said second call type to said second type destination network element.

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24. The apparatus of claim 23 further comprising:

means for associating call set-up information with one of a plurality of destination network elements; and

means for storing said associated call set-up information.

25. The apparatus of claim 23 further comprising:

means for distinguishing received call set-up information as being associated with one of a plurality of destination network elements of a predetermined destination type.

26. The apparatus of claim 23 further comprising:

means for associating one of said plurality of destination network elements with one a plurality of switches; and

means for storing said association.

27. The apparatus of claim 23 further comprising:

means for distinguishing said destination network elements as being associated with one of a plurality of switches of a predetermined destination type.

28. The apparatus of claim 23 wherein said first processing unit comprises:

a decoder for decoding said call set-up information of a first protocol;

an isolator means for determining the called directory number contained in said

~~received call set-up information; and~~

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29. The apparatus of claim 23 wherein said first call type is a voice call and said second call type is a data call.

means for converting SS7 call set-up information to the corresponding ISDN

31. The apparatus of claim 23 wherein said transmitter comprises:

means for transferring said Q.931 information across a Primary Rate Interface to said second type destination network element.

32. The apparatus of claim 23 wherein said first type destination network element is a generic circuit switch.

33. The apparatus of claim 23 wherein said second type destination network element is a remote access server.

34. The apparatus of claim 23 wherein said means for controlling a switch to route call data comprises:

means for sending an application programming interface command to said switch;

and

5 means for setting up a connection through said switch to a port connected to said destination network element according to said received command.

35. The apparatus of claim 23 wherein said switch is an asynchronous transfer mode switch.

36. The apparatus of claim 23 wherein said call data is distributed over a digitized voice transmission system selected from the group consisting of T1, E1, STS-1, DS-3, frame relay, native ATM, and Ethernet.

37. The apparatus of claim 23 further comprising:

means for storing call detail information when said determined call type is of said second type; and

5 means for transferring said stored call detail information to a call accounting system.

38. The apparatus of claim 37 wherein said stored call detail information is selected from the group consisting of call start time-stamp, call end time-stamp, called party directory number, called party sub-address, calling party directory number, calling party sub-address, disconnect reason, inbound B channel, outbound B channel, inbound circuit
 5 identification code, outbound circuit identification code, inbound node identification, and
 outbound node identification.

39. A destination call router for directing voice and data calls across the PSTN to call destinations and for providing network congestion relief for data calls, said calls including signaling and traffic, said destination call router comprising:

~~a plurality of asynchronous transfer mode switches; and~~

5 a Broadband Interworking Call Router (BICR) connected with said asynchronous transfer mode switches, said BICR intercepting signaling of a first protocol, said BICR translating signaling to a second protocol when receiving signaling for said data calls, said BICR routing signaling to said call destinations, said BICR controlling said plurality of asynchronous transfer mode switches to direct traffic to said destination locations.